Proposed Amendment for Interview of September 18, 2006

(Canceled)

2. (Previously presented) The method according to claim 14, further comprising:

determining whether said current output is an information type; and

marking said current output as complete, if said current output is said information type.

3. (Previously presented) The method according to claim 14, further comprising:

after the executing step, storing a value of said automatic expression to a destination reference.

4. (Currently amended) A control system that uses sequential control modules, said control system comprising:

a user interface component that provides at least a table view, said table view comprising a plurality of outputs of a selected step of at least one of said sequential control modules, wherein said outputs comprise a combination of at least one ~~non-interactive instruction~~automatic expression and at least one interactive instruction;

an operator station that executes said user interface component and that responds to at least one input of an operator for said interactive instruction; and at least one controller that is operated by executing said interactive instruction at least partly in response to said operator input and said ~~non-interactive instruction~~automatic expression automatically.

5. (Previously presented) The control system according to claim 4, further comprising:

a journaling component capable of being executing on said operator station for recording information related to the execution of said sequential control module.

6. (Previously presented) The control system according to claim 4, wherein said table view comprises:

a summary area that provides a name of said sequential control module and a list of steps in said sequential control module, wherein said selected step is selected from said list;

a details area that provides a step name and a step description for said selected step; and

a parameters area that provides a current value of at least one parameter associated with said selected step.

7. (Previously presented) The control system according to claim 6, wherein said table view further comprises:

an additional details area for information associated with said selected step.

8. (Previously presented) The control system according to claim 6, wherein said table view further comprises:

a trend area that provides a graph of said at least one parameter associated with said selected step.

9. (Previously presented) The control system according to claim 6, wherein said details area includes a confirmation component to receive a confirmation from said operator.

10. (Previously presented) The control system according to claim 4, wherein said user interface component also provides a sequential function chart view.

11. (Previously presented) A computer readable medium having executable instructions stored thereon to perform a method in a control system that uses sequential control modules, said method comprising:

providing a type indication on a display for an instruction in a sequential control module, said type being confirmable or informational; and

receiving a confirmation from an operator before completing said instruction, if said type is confirmable

at least one of said executable instructions causing an interactive display screen to be presented to an operator that displays a plurality of outputs of a selected step of at least one of said sequential control modules, wherein said outputs comprise a combination of both automatic expression and at least one interactive instruction;

at least one of said executable instructions causing a determination of whether a current one of said outputs is an interactive instruction or an automatic expression;

at least one of said executable instructions causing, if said current output is an interactive instruction, a determination of whether said interactive instruction has been confirmed by said operator;

at least one of said executable instructions causing, if said interactive instruction has been confirmed by said operator, a marking said current output complete; and

at least one of said executable instructions causing, if said current output is an automatic expression, at least one controller in said control system to execute said automatic expression.

12. (Previously presented) The computer readable medium according to claim 11, further comprising:

at least one of said executable instructions causing at least one value of a parameter to be associated with at least one of said outputs on said display screen.

13. (Previously presented) The computer readable medium according to claim 11, further comprising:

at least one of said executable instructions causing additional information about said current output to be displayed on said display screen.

14. (Previously presented) A method of providing interactive control in a control system that uses sequential control modules, said method comprising:

presenting an interactive display screen to an operator that displays a plurality of outputs of a selected step of at least one of said sequential control modules, wherein said outputs comprise a combination of at least one automatic expression and at least one interactive instruction;

determining whether a current one of said outputs is an interactive instruction or an automatic expression;

if said current output is an interactive instruction, determining whether said interactive instruction has been confirmed by said operator;

if said interactive instruction has been confirmed by said operator, marking said current output complete; and

if said current output is an automatic expression, using at least one controller in said control system to execute said automatic expression.

15. (New) A control system that uses sequential control modules, said control system comprising:

a user interface component that provides a display to an operator;

a computer that comprises a program that:

1. configures an interactive procedure for at least one of said sequential control modules, wherein said interactive procedure comprises a combination of at least one automatic expression and at least one interactive instruction;
2. presents on said display a table view that displays said combination of at least one automatic expression and at least one interactive instruction; and

3. then executes said automatic expression automatically and said interactive instruction at least partly in response to one or more inputs of said operator.

Remarks

Claims 2-15 are presented. Claim 4 has been amended to conform its language to that of independent claims 11 and 14. Claim 15 is newly added.

The present invention provides a display interface to an operator that permits a table view of a procedure of a computer controlled process that permits the operator to select a step of the procedure and to view the outputs of the selected step, wherein the outputs comprise a combination of interactive instruction and automatic expression. The ability to view all of the outputs of a step, whether manual or automatic, is a user friendly feature and very advantageous as it eliminates a need for the operator to switch among several views to achieve interactive control. This feature also allows the flexibility of combining automatic expression with manual instructions into a single procedure with a single table view for operator control and viewing of both the automatic expression and the interactive instructions. In contrast, Lipner's instructions are either automatic or manual, but not a combination of both. That is, Lipner's SCM procedures are either automatic or manual, but not a combination of both. This results in two or more procedures to handle an SCM task involving both automatic control and interactive control vis-a-vis the present invention's single procedure that uses a combination of automatic expression and interactive instructions.

Independent apparatus claim 4 captures the display interface by reciting:

"a user interface component that provides at least a table view, said table view comprising a plurality of outputs of a selected step of at least one of said sequential control modules, wherein said outputs comprise a combination of at least one automatic expression and at least one interactive instruction".

Independent method claim 14 captures the display interface by reciting:

"presenting an interactive display screen to an operator that displays a plurality of outputs of a selected step of at least one of said sequential control modules, wherein said outputs comprise a combination of at least one automatic expression and at least one interactive instruction".

Independent claim 11 captures the display interface by reciting:

"at least one of said executable instructions causing an interactive display screen to be presented to an operator that displays a plurality of outputs of a selected step of at least one of said sequential control modules, wherein said outputs comprise a combination of both automatic expression and at least one interactive instruction".

In contrast, Lipner discloses a system that executes a procedure either automatically or manually. The sequential steps of the procedure are stored with equations that permit their execution either automatically or manually based on the operator's selection of automatic or manual mode for the procedure. See column 2, lines 10-21 and 48-51, column 5, lines 5-10.

Lipner discloses an executive interface 39 (Fig. 2) and a procedure interface 47 (Fig. 3), neither of which displays the outputs of a selected step of the procedure in which the outputs are a combination of an interactive instruction and an automatic expression (independent claims 4, 11 and 14).

Lipner provides a procedure view for a procedure that is in manual mode as shown in Fig. 3 and a separate procedure view for a procedure that is in automatic mode (not shown in any drawing figure). In the manual procedure view of Fig. 3, there is no disclosure of any automatic expression. Lipner makes no mention of a procedure or step of a procedure that has a combination of interactive instruction and automatic expression. Thus, Lipner teaches a system

that handles either a procedure that is manual or a procedure that is automatic, but not a procedure that is both automatic and manual.

The Examiner contends (paragraph 17 of the Office Action and comment of the Advisory Action) that when a state of an automatic procedure is violated, an interactive instruction will occur, citing Fig. 3, column 2, lines 27-35 and column 4, lines 19-22. However, Fig. 3 is a screen view of a manual mode procedure. Lipner does not disclose or describe a particular automatic mode procedure or a violated mode of an automatic mode procedure. That is, Lipner mentions a "violated mode" but does not describe or teach any details of how it is implemented in terms of control and display windows. Lacking this description, Lipner cannot anticipate the claimed invention.

In the column 2, lines 27-35, citation, Lipner teaches that if a control signal generated by a step does not result in an expected modification of process conditions, "the step is violated and the automatic sequencing will terminate requiring operator intervention". The column 2, lines 27-35, citation indicates that the automatic mode then reverts to a "violated mode" that requires operator action. However, there is no description of the "violated mode" or of how the operator action is implemented. Based on column 2, lines 10-21 and 48-51, column 5, lines 5-10, the teaching seems to be that the "violated mode" would present a display screen in which the steps of the current procedure are presented for manual mode, which display screen would display only interactive instructions and not both interactive and non-interactive instructions as recited in independent claims 4 and 14. Therefore, Lipner's operation of reversion to a "violated mode" does not anticipate the plain language of the above quoted recitals of independent claims 4, 11 and 14.

With respect to independent claim 4, Lipner's system does not display a view of a procedure that has both an interactive instruction and an automatic expression and, therefore, does not teach a "controller" that executes "said

automatic expression automatically". Therefore, Lipner also lacks the controller recited in independent claim 4.

With respect to independent claims 11 and 14, Lipner also lacks the "determination" instruction and the "determining" step. Lipner has either a procedure that is executed automatically (all outputs are automatic) or a procedure that is executed interactively (all outputs are interactive). Therefore, Lipner has no need to determine whether a current one of the outputs is an interactive instruction or an automatic expression. The Examiner contends in paragraph 17 of the final Office Action that the determining step occurs when a state of an automatic procedure is violated. However, the determination is that a violation has occurred and that a "violated mode" is entered. Lipner does not disclose how the system works in the violated mode. See above discussion. Therefore, Lipner also lacks the "determination" instruction and the "determining" step recited in independent claims 11 and 14.

Further with respect to independent claims 11 and 14, since Lipner lacks the "determination" instruction and the "determining" step, Lipner also lacks the "if said current output" instruction and step, which are conditional on the determination made by the "determining" instruction or step. Therefore, Lipner also lacks the "if said current output" instruction and step recited in independent claims 11 and 14.

For the reason set forth above, it is submitted that the rejection of claims 2-7 and 9-14 under 35 U.S.C. 102(b) as anticipated by Lipner is erroneous and should be withdrawn.

The Office Action rejects claim 8 under 35 U.S.C 103(a) as unpatentable over Lipner in view of U.S Patent No. 6,775,576 to Spriggs, hereafter Spriggs.

This rejection is erroneous claim 8 depends on independent claim 4 via intervening claim 6. That is, Lipner lacks elements recited in independent claim 4 as set forth in the discussion of claim 4. These elements are not disclosed or taught by Spriggs, which was cited for a different reason.

For the reasons set forth above, it is submitted that the rejection of claim 8 under 35 U.S.C. 103(a) is erroneous and should be withdrawn.

Newly presented claim 15 recites the combination of a user interface component that provides a display to an operator and a computer. The computer comprises a program that configures an interactive procedure comprising "a combination of at least one automatic expression and at least one interactive instruction", presents on the display a table view of the "combination of at least one automatic expression and at least one interactive instruction", and "then executes said automatic expression automatically and said interactive instruction at least partly in response to one or more inputs of said operator". Lipner does not disclose the display to the operator of both combination of "automatic expression" and "interactive instruction" in a table view to the operator (for the reasons discussed above) and "then" the execution of the "automatic expression" automatically and the "interactive instruction" at least partly in response to one or more operator inputs. Lipner teaches the display of interactive instructions in a manual mode and automatic instructions in an automatic mode. Lipner does not disclose or teach the display of the automatic instructions and the interactive instructions to the operator and "then" the execution of them. In the automatic mode, Lipner displays only automatic instructions and executes them. It is only when a violation occurs that Lipner enters a violated mode, in which Lipner for the first time displays an interactive or manual instruction. Therefore, Lipner lacks the program steps recited in new claim 15.

In Lipner, the automatic expression would be displayed in a window in the automatic mode. Lipner lacks any disclosure or teaching of how the violated mode would be handled.